15¢
$5.50 A YEAR
August 15, 1953
VOL. 64, NO. 7 PAGES 97-112

SCIENCE NEWS LETTER

TECHNOLOGY DEPT
PUBLIC LIBRARY
AUG 18 1953
DETROIT

THE WEEKLY SUMMARY OF CURRENT SCIENCE

Niagara Underground

See Page 111

A SCIENCE SERVICE PUBLICATION

Kodak reports to laboratories on:

a new inexpensive team to take and show 8mm movies... our recent contribution to the improvement of bread... our answer to those who request extra-sensitive film or plates

Brownie team

You're either very old or you led a particularly austere youth if "Brownie Camera" doesn't recall

age 12 and your first serious experiences in photography. The trademark "Brownie," one of our most treasured assets, is now applied in the same old spirit to our simplest 8mm movie camera and projector. They're not primarily offered as scientific instruments, but the following considerations may suggest a visit to the nearest Kodak dealer: a) in many kinds of field work there are occasions and moments when even a very inexpensive movie camera is worth a great deal; b) the Brownie Movie Camera sells for only $39.75, the Brownie Movie Projector for only $62.50; c) just because a piece of equipment has potential professional value, it's no sin to have a little fun with it once in a while.

Bread

Ever since the first neolithic housewife baked the first loaf of shortening-bearing bread, substances known as monoglycerides have been formed by the splitting of fats in the baking process. Your own digestive system carries this splitting even farther, since it converts 30 or 40 per cent of any fat you eat into monoglycerides.

The interesting thing is that if *before* you bake a loaf of bread you add about 1/40 of an ounce of pure monoglycerides to the shortening that goes into it, you significantly improve the tenderness, texture, volume, and crumb structure of the product. Monoglycerides have been manufactured for this purpose for some years, but they have really come into their own only recently when our high vacuum stills began concentrating them from reaction mixtures which previously constituted the only available commercial form of monoglycerides. Now the shortening for several of the best known bread brands in the land is enhanced with our new *Myvatex Food Emulsifier*—a 50-50 mixture of our distilled monoglycerides with prime lard. It would have been hard to predict this as the culmination of certain experiments in producing high vacuum undertaken years ago to solve a minor problem of the photographic film business.

Myvatex Food Emulsifier *looks like this. If you happen to be in the baking business and are looking about for an emulsifier permitted under the new Federal Bread Standard, by all means send for a sample and technical data from Distillation Products Industries, Rochester 3, N. Y. (Division of Eastman Kodak Company).*

Sensitivity

Currently, *Kodak Tri-X Panchromatic Film* is our "fastest" regular product. Excellent stuff it is too, with an Exposure Index of 160, beautiful tone characteristics, and very little granularity for all that speed. It has the important virtue, also, of quick availability from the shelves of any dealer who carries a general line of Kodak products.

Now, what if *Tri-X Pan Film* still isn't sensitive enough for some extraordinary problem that confronts you?

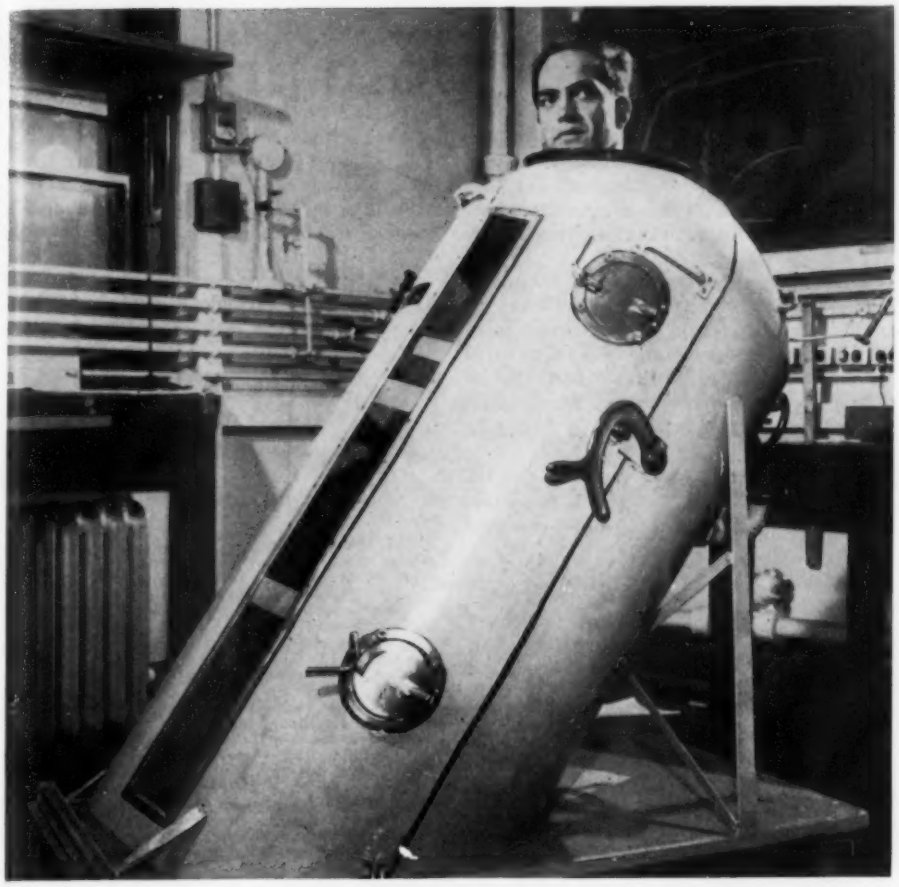
We have two different answers, depending on whether the exposure is 1) taking too many hours or 2) too many seconds, milliseconds, or microseconds. For Case 1, there are *Kodak Spectroscopic Plates and Films* of Type 103a. For Case 2, we take Type I emulsion and give it Class D sensitization, which extends in strength from 4600 A to 6200 A. Case 1 is chiefly of interest to astronomers, who know all about it. Case 2 occurs more frequently. *If* it has come up in your laboratory, *if* you can wait until our Research Laboratories can coat Type I-D emulsion on plates or film for you, and *if* you are willing to put up with a little less uniformity, and a little poorer pictorial quality and granularity than *Tri-X Pan* provides, we can give you approximately a 3 to 1 advantage in sensitivity over the latter product under comparable conditions. Better check first, though, to make sure there isn't some way you can use *Tri-X Pan Film.*

You can order Type I-D *plates and films through your Kodak Industrial Dealer. (Address on request from Eastman Kodak Company, Industrial Photographic Division, Rochester 4, N. Y.) We'll even be glad to coat the emulsion for you on 16mm and 35mm movie film, but we'll have to ask you to take at least 10 100-foot rolls of the 16mm or 5 of the 35mm. The 16mm is priced at $4.98 per roll, and the 35mm at $8.25 per roll, both on daylight-loading flanged spools. On cores for darkroom loading, they are priced at $4.37 and $7.50, respectively.*

Prices include Federal Tax where applicable and are subject to change without notice.

This is one of a series of reports on the many products and services with which the Eastman Kodak Company and its divisions are ... *serving laboratories everywhere*

Kodak
TRADE-MARK



NEW IRON LUNG—Polio victims confined to bed-type respirators may be able to sit up if the iron lung, which Dr. James L. Whittenberger is demonstrating, passes laboratory tests.

MEDICINE

Polio Victims Sit Up

Scientists now testing model of sit-up iron lung and an electronic "brain" to guard patients from danger of mechanical failure of the respirator.

▶ POLIO PATIENTS doomed to months or years of life in an iron lung may be able in the future to sit up in the lung, instead of lying flat on their backs and viewing the world through a mirror.

This hope comes from a new "sit up" respirator, or iron lung, devised at the Harvard School of Public Health in research directed by Dr. James L. Whittenberger.

The sit-up lung Drs. Benjamin Greeley Ferris Jr. and Bertrand Kriete of Harvard and the Children's Medical Center demonstrated at the center in Wellesley Hills, Mass., is a full body respirator. But instead of being horizontal, it rises at about a 30-degree angle from a platform equipped with wheels. Inside the lung is a comfortable chair which can be raised, lowered or otherwise adjusted to the convenience and comfort of the patient.

The experimental model of the sit-up lung is the only one of its type in the world. If it passes tests now being conducted under a March of Dimes grant from the National Foundation for Infantile Paralysis, it can be duplicated for lung-crippled polio patients elsewhere.

It may get its first try-outs at the eight respirator, or iron lung, centers that the National Foundation has been establishing throughout the nation. These centers are both for care of patients and research on the causes and effects of breathing difficulties suffered by many polio patients. Iron lung centers for patient care only also exist.

One of the greatest fears of iron lung patients is that the mechanical lung on which they depend for the breath of life will fail. Scientists at Harvard School of Public Health have designed an electronic "brain" to guard the patients against this peril. Called a servomechanism, the brain can be set to any desired pattern for pressure within the lung.

The brain passes this information back to an air pump that maintains the predetermined pressure. When the nurse opens one of the ports in the iron lung to attend the patient, or if a leak develops, a pick-up device reports this to the brain. The brain then increases the action of the air pump to offset the pressure loss.

As a research tool, the iron lung's new electronic brain is expected to give scientists a chance to test the effects on the lungs of polio patients and experimental animals of changes in frequency, amplitude, average pressure and wave form of the pressures within a tank respirator.

While these new devices will help patients in the future, polio patients today, including some stricken during the current outbreak, can be greatly helped by the iron lung centers. Gathered together in one big room the iron lungers no longer feel the terrible loneliness, dreariness and futility, as well as fear, that afflicts an iron lung patient by himself in a hospital room. They help cheer each other, and those held to the lung more by fear than physical inability to breathe without it are encouraged by the sight of others getting out of their lungs to try breathing for short and longer periods on their own.

Science News Letter, August 15, 1953

MEDICINE

Polio Patients Discover "Frog Breathing" Helps

▶ POLIO PATIENTS at Rancho Los Amigos Respirator Center at Hondo, Calif., are learning to breathe like frogs. Success in "frog breathing" helps them to spend hours and even all day outside the tank respirators, or iron lungs, chest respirators and rocking beds on which they formerly depended for the breath of life.

The trick of "frog breathing" was discovered by a couple of the patients themselves. When Dr. John E. Affeldt, chief physician at the center, learned about this, he arranged to have the technique studied and taught to other patients.

A moving picture of the method has now been made to teach doctors, nurses and patients at respirator centers in other parts of the nation.

In "frog breathing," the patient uses his tongue as a pump. With this and certain muscles of throat and neck he is able to gulp little mouthfuls of air down into his lungs. With many little mouthfuls he can get a lungful. Doctors call the method glossopharyngeal, glosso referring to the tongue and pharyngeal to the pharynx in the throat. The trick in "frog breathing" is not to swallow the gulped mouthfuls of air but to get them down into the lungs.

Some patients who have perfected the technique spend as many as 10 and in one

case 14 hours at a time free of iron lungs or any other mechanical aid to breathing. Since "frog breathing" is not automatic, however, they must return to a respirator or rocking bed at night while they sleep.

In order to teach patients how to do the "frog breathing" properly, fluoroscopic and X-ray studies have been made. Instruction of patients at Rancho Los Amigos is now given by Dr. Clarence Dail.

"Frog breathing" was shown to science writers touring respirator centers for polio patients under the auspices of the National Foundation for Infantile Paralysis.

At present 2,800 patients throughout the nation depend on respirators of some kind. Cost for the care of these patients amounts to $7,000,000 a year. And each year's epidemic adds hundreds more patients who must live in respirators.

Respirator centers are being established in many parts of the nation. By the end of this year there will be 10 of them.

Science News Letter, August 15, 1953

INVENTION

Recovering Uranium

► THE A-BOMB material, uranium, can be recovered more easily from ores and "artificial ores" by an improved flotation process that captures the radioactive material in froth and carries it to the top of a vat.

The improved process can either be used to recover uranium from ores or it can be used to recover the precious element from earth materials containing it. These earth materials are called "artificial ores" by inventor Preston L. Veltman of Severna Park, Md., who assigned his patent, No. 2,647,629, to the Atomic Energy Commission.

Previous flotation methods have been developed, but they rarely can extract all the uranium economically. Furthermore, separating this element from the froth is tedious, difficult and expensive.

Mr. Veltman's process involves crushing the uranium-containing ore into fine particles, mixing them with water, adding a polyethylene oxide-phenol detergent and a sodium salt of at least one fatty acid. The mass is agitated so that froth is formed. The froth carries the uranium to the surface of the liquid, permitting easy recovery when the froth is sprayed with water.

Science News Letter, August 15, 1953

MEDICINE

Treatment of Skin Ills

► BURNING, ITCHING, inflamed and weeping skin is the sad summertime lot of many a person as a result of too much sun, chiggers, poison ivy and similar seasonal troubles.

The wise person will avoid the causes where possible. If he does get one of these skin troubles, he will be careful about treatment for it. Remember that skin ailments often lead to more serious infections.

"There is no substitute for prevention and no short-cut cure for poison ivy, or oak, chigger bites, sunburn and athlete's foot," declares Dr. J. Lamar Callaway, skin specialist at Duke University, Durham, N. C.

"If common safeguards don't clear up the condition, see your doctor," he warns.

"Some sunburn repellents are very good," Dr. Callaway points out, "but avoiding overexposure is still much more important than all of the so-called sun screens."

Bathing with soap and water is the first step he advises in treating poison ivy, chigger bites and athlete's foot. Cool wet dressings should be used to relieve itching, and the irritation might be eliminated with antihistamine pills and soothing lotions, prescribed by a doctor.

"One popular misconception is that poison ivy can be spread from the fluid of the blisters," Dr. Callaway points out. "It cannot be spread from the blister fluid any more than the fluid from an ordinary burn blister can spread burns."

Itching in eczema and welts, hives, nettle rash, mad itch or strawberry rash usually is eased with use of antihistamines recommended by your doctor. These diseases usually are the result of an allergy, which may be complicated by external irritation, nervous tension or some general upset of the person's system.

Impetigo, a common contagious skin infection, can be cured with antiseptic ointments and use of sulfa drugs or antibiotics. Prompt treatment is important because the disease sometimes leads to kidney trouble or Bright's disease.

Science News Letter, August 15, 1953

BIOCHEMISTRY

Premature Babies Give Clue to Test for Cancer

► THE DISCOVERY that premature babies and children with cancer excrete in their body wastes the same abnormal chemical substances is announced by Drs. Bruce D. Graham and Makepeace Uho Tsao of the University of Michigan Medical School.

The substances apparently are by-products of a sub-normal activity in the "life processes" known as metabolism in which less than normal amounts of oxygen are used. Healthy children do not excrete them.

The specific metabolic process which leads to development of these substances may hold the key to the high death rate among premature babies. One-third of these die from undetermined causes.

Lowering this high death rate may be possible in future when the scientists have been able to identify the substances and their relationship to metabolic processes.

Tests for earlier diagnosis of cancer are another possible result of the discovery, the scientists believe.

The research leading to the discovery and further studies now under way were supported by a grant from Playtex Park Research Institute and were under the direction of Dr. James L. Wilson.

Science News Letter, August 15, 1953

SCIENCE NEWS LETTER

VOL. 64 AUGUST 15, 1953 NO. 7

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C., NOrth 7-2255. Edited by WATSON DAVIS.

Subscription rates: 1 yr., $5.50; 2 yrs., $10.00; 3 yrs., $14.50; single copy, 15 cents, more than six months old, 25 cents. No charge for foreign postage.

Change of address: Three weeks notice is required. When ordering a change please state exactly how magazine is now addressed. Your new address should include postal zone number if you have one.

Copyright, 1953, by Science Service, Inc. Republication of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service. Science Service also publishes CHEMISTRY (monthly) and THINGS of Science (monthly).

Printed in U. S. A. Entered as second class matter at the post office at Washington, D. C., under the act of March 3, 1879. Acceptance for mailing at the special rate of postage provided for by Sec. 34.40, P. L. and R., 1948 Edition, paragraph (d) (act of February 28, 1925; 39 U. S. Code 283), authorized February 28, 1950. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 1 E. 54th St., New York 22, ELdorado 5-5666, and 360 N. Michigan Ave., Chicago 11, STate 2-4822.

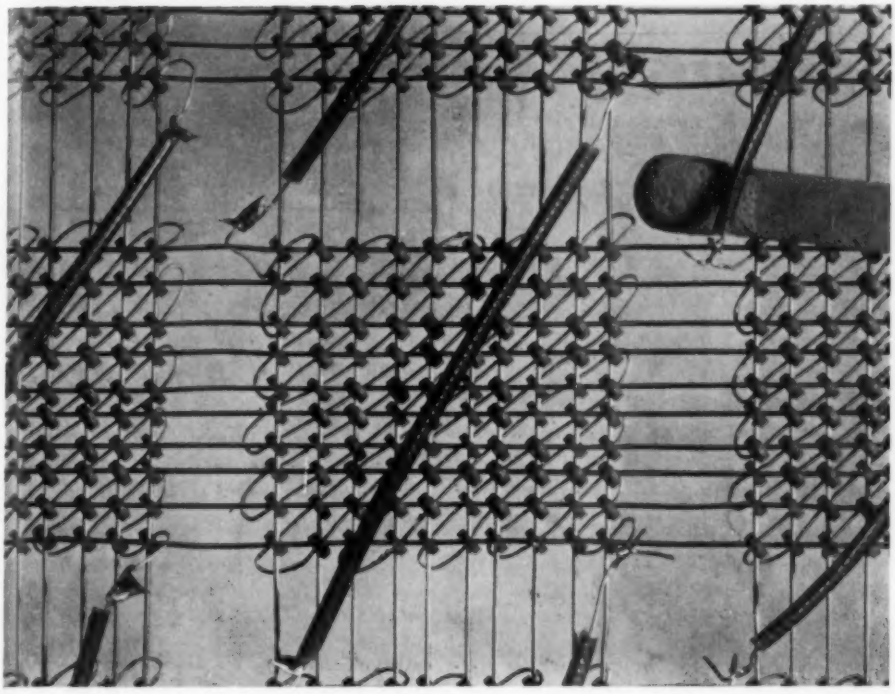
SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Fernandus Payne, National Science Foundation; Karl Lark-Horovitz, Purdue University; Kirtley F. Mather, Harvard University. Nominated by the National Academy of Sciences: Harlow Shapley, Harvard College Observatory; R. A. Millikan, California Institute of Technology; Homer W. Smith, New York University. Nominated by the National Research Council; Leonard Carmichael, Smithsonian Institution; Ross G. Harrison, Yale University; Duane Roller, Hughes Aircraft Co. Nominated by the Journalistic Profession: A. H. Kirchhofer, Buffalo Evening News; Neil H. Swanson, Baltimore Sun Papers; O. W. Riegel, Lee Memorial Journalism Foundation. Nominated by the E. W. Scripps Estate: John T. O'Rourke, Washington Daily News; Charles E. Scripps, E. W. Scripps Trust; Edward J. Meeman, Memphis Press-Scimitar.

Officers—President: Harlow Shapley; Vice President and Chairman of Executive Committee: Leonard Carmichael; Treasurer: O. W. Riegel; Secretary: Watson Davis.

Staff—Director: Watson Davis. Writers: Jane Stafford, Marjorie Van de Water, Ann Ewing, Allen Long, Horace Loftin. Science Clubs of America: Joseph H. Kraus, Margaret E. Patterson. Photography: Fremont Davis. Sales and Advertising: Hallie Jenkins. Production: Priscilla Howe. Interlingua Division in New York: Alexander Gode, Hugh E. Blair, 80 E. 11th St., GRamercy 3-5410.



MAGNETIC MEMORY DEVICE—Enlarged view of a section of the tiny magnetic cores that store information of the kind used in electronic computers shows their size relative to the head of a paper match (right).

ELECTRONICS

Human Brains on "Brains"

Announce the development of ring-shaped magnets woven into a netting of wires to act as storage center or fast-acting "memory" in an electronic computer.

▶ HUMAN BRAINS, 165 of them, cogitated upon electronic "brains" at a recent conference held in Chicago. In discussing automatic digital computers, as the man-made brains are called, new developments in magnetic memory devices, transistors and special computing devices were revealed. Scientists hope to be able to build the complex computers so that they are smaller, more efficient and operate with less heat.

One new machine described at the symposium, sponsored by the Argonne National Laboratory, promises to solve some scientific and economic problems that previously have stumped the big electronic "brains" that man has created to help him with his calculations.

The machine features a fast-acting device that can "memorize" information in a fraction of a second, and that can recall the information at a moment's notice. Furthermore, the new electronic machine can store vast amounts of information indefinitely.

Present machines are limited because they cannot store information if they have a fast-working "brain," Dr. Jan A. Rajchman of the Radio Corporation of America Laboratories division told the symposium. On the other hand, if present machines are good at storing information, they usually are not fast-acting. These failings in science's electronic brain children prevent the machines from being used on many complicated scientific and economic problems.

Designed at RCA's David Sarnoff Research Center, the new machine uses 10,000 tiny ring-shaped magnets woven into a netting of wires. Current flowing through the wires magnetizes the tiny rings so that 10,000 bits of information can be stored in an instant.

If 100 of the machines were connected, Dr. Rajchman reported, the assembly theoretically could store all the information on five solid pages of a newspaper. This would amount to about 1,000,000 bits of information.

Meanwhile, Argonne scientists themselves unmasked what they billed as "the world's fastest high-speed, general-purpose digital computer." Called the Oracle, it was jointly built by Argonne and Oak Ridge personnel. It is slated for installation at Oak Ridge early this fall for use in a mathematical panel.

A modification of a previous "brain," the Oracle is said to be more reliable and easier to maintain. It also works faster than its predecessor.

It can receive, retain and process 2,048 twelve-digit decimal numbers, it can memorize 4,000,000 words, and it can multiply 999,999,999,999 by 999,999,999,999 in less time than it takes a person to bat his eye.

Science News Letter, August 15, 1953

MEDCINE

Anti-Polio G.G. Shots For Alaskan Children

▶ CHILDREN AND probably some grown-ups in Juneau, Alaska, received shots of gamma globulin during the last week in July to protect them, if possible, from paralysis and crippling by poliomyelitis.

The Alaskan capital and surrounding area was the latest region, as of July 30, to get some of the anti-polio material for mass prophylaxis, the Public Health Service, U. S. Department of Health, Education and Welfare, reports.

A total of 17,400 cubic centimeters of the precious material was shipped from Seattle. This was enough to immunize the approximately 2,500 children under 15 years of age in the Juneau area. But because cases of polio there have been scattered through all age groups from one to 49, some 19- and 20-year-olds and perhaps some still older persons may have gotten some of the g.g.

Doses are calculated on body weight and since Eskimos are in general small, the total amount of g.g. sent may have gone further than it would in some other communities.

Juneau had seven cases of polio during the last week in July, and four or five for each of the two preceding weeks. This sounds like very few, but works out to a high proportion of the small population, about 6,000 at the last census.

Science News Letter, August 15, 1953

PEDIATRICS

Do Not Express Pity When Visiting Blind Child

▶ DO NOT express pity if you visit a baby or little child who was born blind. Such a little one does not know what seeing is and he does not know that he is deprived of anything.

This is advice given by the Children's Bureau of the U. S. Department of Health, Education and Welfare, which has just issued a booklet on the pre-school child who is blind (see p. 108).

By the time such a child realizes that he cannot see, the experts explain, he can have grown into a happy person who is meeting life as well as any child. How much unhappiness a blind child and his parents will face is due to "the way the family and the community and the world act toward blindness."

Science News Letter, August 15, 1953

ETHNOLOGY

Study Choco Indians

Smithsonian Institution scientists tell of their study of light-skinned South American Indians who shun white men's clothing and housing.

➤ INDIANS WHO still prefer their own black and red body paint to the white man's clothing have been studied by Dr. Matthew W. Stirling, ethnologist of the Smithsonian Institution. Dr. Stirling, accompanied by Mrs. Stirling, visited these people, the Choco Indians of Darien, Panama, last winter.

The Chocos, who live on the Sambu River, are close neighbors of the much publicized "White Indians" of the San Blas tribe, but actually the Chocos, when not painted, are much lighter skinned than the San Blas. Among the San Blas, albinism is very common and it is this trait that has given them the reputation of being white, Dr. Stirling said.

Although not interested in adopting the white man's clothing and housing, the Choco Indians have become enthusiastic about some of the "blessings" of civilization. They like outboard motors, Dr. Stirling found, and also mosquito nets and kerosene lamps.

The well-dressed Choco wears little and this seems appropriate to the very warm climate in which he lives. The Choco man wears a G-string, which is a cloth passed between the legs and looped over a waist string back and front. Choco ladies wear a garment which gives a sarong effect. And they now like the bright-colored cotton cloth imported from civilization in preference to the native bark cloth.

The Sambu River, where the Chocos live, has recently been opened to boats of the banana trade. The Chocos take silver money in exchange for their fruit. But they do not use the money as currency. Instead they cut four holes around the edges of the silver coins and string them together in the shape of a vest or dangling bright pendants to hang from the head.

They paint their bodies with pigments from native plants. Their faces from the mouths up are painted with red paint, but from the ears down they are an all-over black. A good paint job stays on for about three weeks.

The native blowgun with poison darts is going out of use, the Stirlings found. But neither does the Choco like civilization's rifle. When he goes hunting, he takes bow and arrows or spears.

The native house is fitting for the climate. A large platform is built on stilts high off the ground. There are no sidewalls, but the roof is sloped down low to keep out the rain. The main platform, which may be 40 feet square, is kept clear and very clean. Around the sides are found separate "porches." Each one of these is used by a married daughter and her family for their sleeping quarters.

Science News Letter, August 15, 1953

ORNITHOLOGY

Warbler Builds Nest Over Cowbird's Gift of Eggs

➤ THE COWBIRD that foists its children off on other birds is outwitted by the yellow warbler or "wild canary."

To save itself the trouble of hatching its eggs and caring for its young, the cowbird lays its eggs in the nests of other birds. The yellow warbler has learned to build a second floor over the nest in which the strange egg is deposited, leaving the alien egg "to cool off in the cellar."

Even if the cowbird is persistent and keeps on invading the nest with its eggs, the warbler will build another story to its nest in order to avoid having unwanted children, even as many as six stories.

This conflict between birds is told in a new volume by Arthur Cleveland Bent, collaborator of the Smithsonian Institution.

Science News Letter, August 15, 1953

• RADIO

Saturday, August 22, 1953, 3:15-3:30 p.m., EDT

"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. Thomas H. Hunter, dean of the University of Virginia School of Medicine, will discuss "Medical Research Progress."

BIOCHEMISTRY

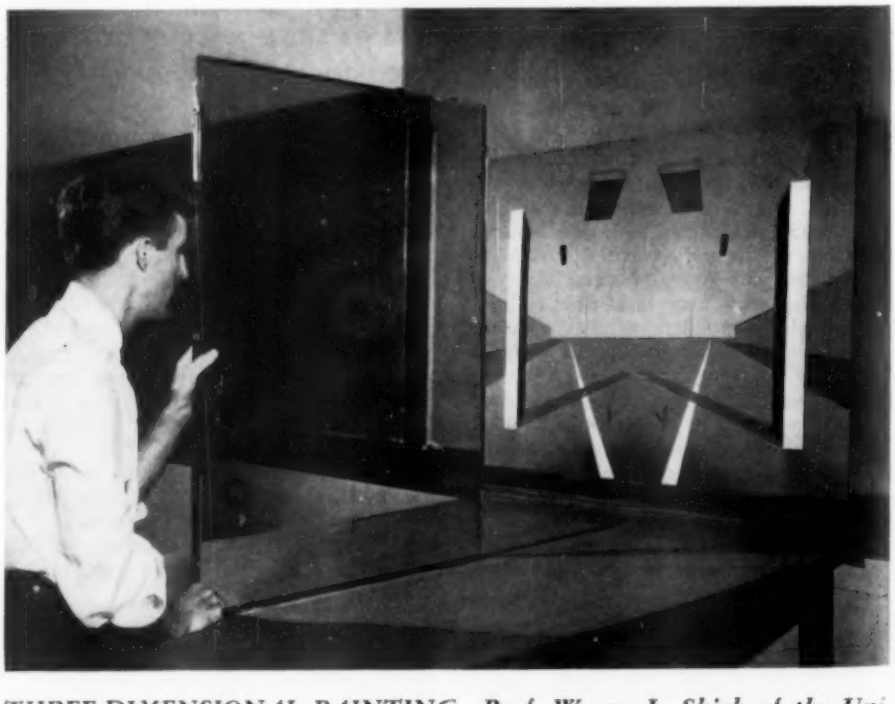
Food Poisoning Depends On Chemistry of Body

➤ THE POSSIBILITY that whether or not a person gets food poisoning depends on the state of his body chemistry is suggested in experiments reported by Drs. L. Joe Berry and Roland B. Mitchell of Bryn Mawr College, Bryn Mawr, Pa., and the USAF School of Aviation Medicine, Randolph Field, Tex.

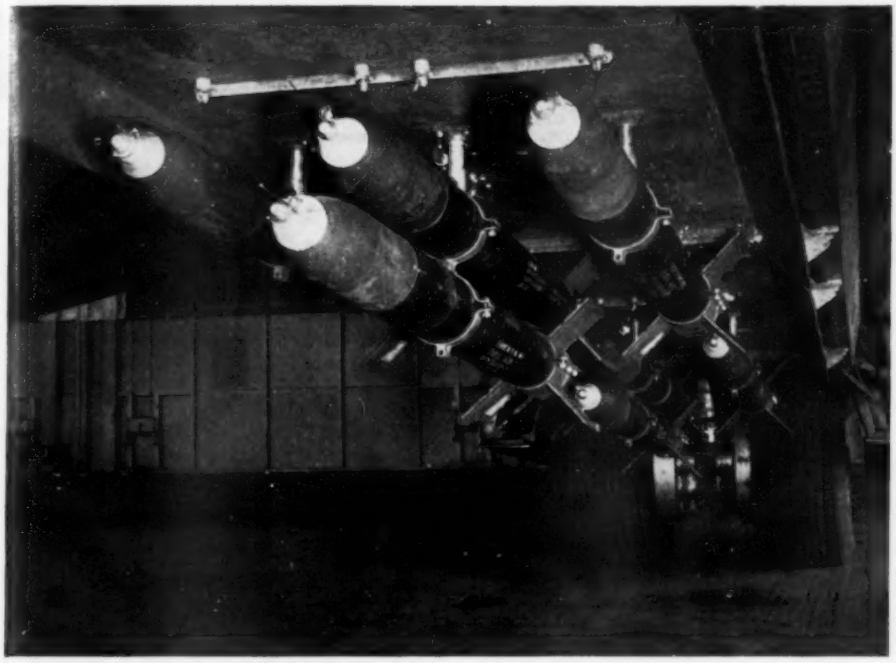
Altering body chemistry to block that part of it called the citric acid cycle, these scientists found, made mice very much more susceptible to infection with the germs called *Salmonella typhimurium*. These germs cause disease in mice and also food poisoning in man.

Mice that had their citric acid cycle blocked by injections of sodium malonate died within eight hours after doses of *Salmonella* that do not cause casualties among normal mice until the third day. The sodium malonate by itself would not kill the mice in the doses used, they report in *Science* (July 31).

Science News Letter, August 15, 1953



THREE-DIMENSIONAL PAINTING—Prof. Wayne L. Shick of the University of Illinois shows here an abstract of geometric forms and shadows he has painted which, without being projected, will produce a stereoscopic effect when viewed with a mirror.



ROTARY BOMB DOOR—Rockets as well as bombs can be carried in the pre-loaded rotary bomb door shown here. The device turns 180 degrees just prior to bomb release, thus leaves no open bomb bay for buffeting winds. Using such a door, developed by the U. S. Air Force and Glenn L. Martin Company, fast-flying jet aircraft do not have to slow down to release their bombs or rockets. (See SNL, April 25, p. 269.)

ASTRONOMY

Test of Einstein Theory

▶ THE MINOR planet, Icarus, which travels closer to the sun than any other object in the solar system, will probably break a speed record for its extremely rapid motion in relation to earth in 1968.

Dr. Samuel Herrick Jr. of the University of California made this prediction to a Royal Astronomical Society meeting in London. The asteroid also "may become the most critical astronomical test" of Einstein's relativity theory.

Until the discovery of Icarus by Dr. Walter Baade of the Mount Wilson Observatory in 1949, Mercury was the only planet suitable for spotting small changes in perihelion motion due to relativity effect. Perihelion is the point in the path of a planet or comet which is nearest to the sun.

Relativity theory predicts that over a period of time this point should shift a small amount, different for each planet. Although this change is much smaller over a century for Icarus than for Mercury, it can be measured about five times as accurately for the asteroid as for Mercury.

Calculations of the perihelion motion of Icarus were made by Dr. Herrick and Dr. J. J. Gilvarry of the Rand Corporation, Santa Monica, Calif.

In 1968, Icarus, the most eccentric object now known in the solar system, will come within about four million miles of the earth. This is some four times closer than any minor planet has yet been predicted to come.

The asteroid's diameter is about half a mile, the smallest calculated. It is named after the mythological boy whose wax-attached wings melted off during a flight too close to the sun, since it can approach as close as 17,000,000 miles to the sun. It is the only body outside of a comet known to pass within the orbit of Mercury. Most other asteroids are confined to a zone between the orbits of Mars and Jupiter.

Science News Letter, August 15, 1953

BIOLOGY

Mexican Naturalists Join Association

▶ MEXICAN NATURALISTS have been invited to join with American scientists in a new Southwestern Association of Naturalists which will promote the field study of plants and animals, living and fossil.

The new organization will cover the states of Arizona, Arkansas, Kansas, Louisiana, New Mexico, Oklahoma and Texas, as well as Mexico, Prof. Herndon G. Dowling of the University of Arkansas, secretary, has announced.

Science News Letter, August 15, 1953

DENTISTRY

Discover Tissue Network Connecting Teeth, Gums

▶ THE DISCOVERY of a fine network of tissues that apparently connects the teeth to the gums has been reported by a University of California dental scientist, Dr. Louis J. Baume.

The cause of the gum-tooth connection has long been obscure. The strong adhesion is the defense barrier against pyorrhea and other gum infections.

Dr. Baume said that animal experiments show that the fine network of tissue decays in vitamin C deficiency, causing the well-known gum lesions of this disease. He added that mechanical injury may also destroy the fibers, loosening the gum-tooth connection, and inviting pyorrhea.

The scientist said the fibers, called tonofibrils, are protoplasm in chain form. They are arranged in bundles and run continuously from one cell into another, thus providing great strength and cohesion. They extend from underlying gum tissue into the tooth enamel cuticle, or "skin of the teeth."

The existence of the tonofibrils apparently has been overlooked in past research because laboratory preparation methods used have destroyed them. These methods include the use of dyes and preserving chemicals.

Dr. Baume observed gum tissues in the living state for the first time by means of the phase contrast microscope.

He photographed tissue taken in dental operations less than ten minutes after its removal.

Science News Letter, August 15, 1953

PHYSICS

Illusive Atomic Particle Made in Cosmotron

▶ ANOTHER OF the illusive particles within the heart of matter, known as the neutral V-particle, has been created for the first time artificially in the giant cosmotron atomic accelerator at Brookhaven National Laboratory.

The cosmotron was operating at an energy of 2.2 billion electron volts when it yielded two definite examples of these V-particles, so-called from the shape of their vapor trails in the experimental chamber which was bombarded with powerful neutrons. They were similar to those found in cosmic rays but never before assuredly manufactured by man-made radiation.

Only two definite examples of the neutral V-particle were found on about 4,000 photographs taken. This is another step toward understanding the atomic nucleus in which is locked secrets of matter and energy.

The experiments by Drs. W. B. Fowler, R. P. Shutt, A. M. Thorndike and W. L. Whittemore are reported in the *Physical Review* (June 15).

Science News Letter, August 15, 1953

GENERAL SCIENCE

College Deferments To Remain Level

➤ COLLEGE DEFERMENTS under Selective Service will continue under the present regulations and at the same levels until about this time next year at least.

This is now the expectation in Washington, despite tightening of regulations that were planned before the Korean truce actually went into effect.

Young men in college can look forward to at least another year of study to allow fitting themselves for more useful military as well as civilian service to the nation.

The pinch is expected to come about August next year, and a tightening of the situation will occur even if the actual fighting does not resume. The present size of the armed forces will require the drafting of more than those who become 18 and one-half years old.

The return to civilian life of Korean veterans is expected to add to the ranks of veterans in college. These students, having done their military service, will be able to look forward to uninterrupted college work, and they will be added to the trained manpower that will be available in a few years to industry.

Already the numbers of veterans from Korea who are taking advantage of the college provisions of the new law exceed those that Veterans Administration officials predicted would be going to college.

The tight draft situation that will arise next year has renewed discussion of a universal military training program, but there is no possibility of any action by Congress until next year, if then.

Science News Letter, August 15, 1953

GEOGRAPHY

Persian Gulf Pirates Turn to Oil Industry

➤ THE PIRATES, smugglers and slave traders on the shores of the Persian Gulf, formerly known as the "Pirate Coast," have given up their ancient "trades" to work for the oil industry.

This is reported by Dr. Alexander Melamid of the New School for Social Research to the American Geographical Society's *Geographical Review* (April).

The port of Sharjah, near the eastern end of the coast line, sends about 350 boats out to do pearling, and in addition has about 100 fishing boats. For the most part, however, the coast, now called Trucial 'Oman, is virtually empty of human beings today.

Qatar at the northwestern end of the coast now ranks eleventh in oil-producing states of the world. Many wells yield more than 5,000 barrels a day, compared with an average in the U. S. of 12.8 barrels.

Since ex-President Truman's claim in 1945 to United States jurisdiction over the oil resources under the shallow seas of the U. S. continental shelf, no fewer than 11 states in the Persian Gulf area have asserted similar or more sweeping claims.

These claims are often conflicting, due to the fact that no boundaries are clearly defined on the land, let alone under the sea. But so far oil has been struck at only one offshore point and that is in the extreme northwest part, effectively claimed by Saudi Arabia.

Piracy has practically ceased since 1835 when Great Britain signed a treaty with the sheiks of Trucial 'Oman, in which the sheiks agreed not to fight one another on the sea nor to engage in piracy and Britain, on its part, agreed not to interfere with the many land wars of the sheiks. Great Britain recognized no boundaries between the sheikdoms.

Six local sheiks signed the treaty in 1835. Only five sheiks existed in 1914. Today there seem to be seven. When Great Britain had a quarrel over oil concessions in Iran, they rerouted their air routes to India over Trucial 'Oman instead of Iran. Rights to land planes at Sharjah were obtained and overnight quarters for passengers with permanent armed guards were established in a fortified compound near Sharjah.

Today, larger planes can fly directly from Bahrein to Karachi and few landings are made in Trucial 'Oman.

Science News Letter, August 15, 1953

ANTHROPOLOGY

Respect Man's Right To His Own Culture

➤ TWO ANTHROPOLOGISTS believe that we must accept a man's right to his own culture, just as we have accepted his right to his own religion.

They are Dr. Ralph Beals and Dr. Harry Hoijer of the University of California at Los Angeles whose new book, "An Introduction to Anthropology," has just been published.

They point to these examples: 1. Some Eskimos make a practice of killing their grandparents. 2. Among the Trobrianders of Melanesia, fathers are not required to support, educate or discipline their children. 3. A Navajo man must not speak or even look at his mother-in-law.

"In many cases these customs have a logical economic or social basis," say the U.C.L.A. anthropologists.

The food supply of some Eskimos is often barely enough to maintain children and working adults. To prohibit killing of grandparents is to condemn the group as a whole to slow starvation. Thus, unless we can help better the conditions that gave rise to the practice, we have no right to interfere with it, say the anthropologists.

Masculine responsibility for child care is not lacking among the Trobrianders. It is the function of an uncle.

As for the Navajo husband-mother-in-law relationship, there are probably those who would find it quite acceptable in our own society, the professors add.

Science News Letter, August 15, 1953

IN SCIEN

PALEONTOLOGY

Death Valley Home Of Ice Age Mastodon

➤ EVIDENCE THAT elephant-like mastodons roamed Death Valley during the Ice Age of 10,000 to 15,000 years ago has been uncovered with the discovery of a 39-inch tusk near the site of an extinct lake there.

The tusk was eight inches in diameter at one end and four inches at the other. In spite of all precautions taken by its finder, Dr. Thomas Clements, University of Southern California geologist, the ancient tusk crumbled to pieces when it was removed.

Science News Letter, August 15, 1953

PSYCHOLOGY

Mice Defeated in Fights Have "Combat Fatigue"

➤ MICE THAT are defeated repeatedly in fights with other mice develop "combat fatigue" just as some soldiers do.

This has been discovered in experiments at the Roscoe B. Jackson Memorial Laboratory, Bar Harbor, Me. While the investigations by Dr. J. P. Scott and Mary-Vesta Marston were on one strain of the famous pure-bred Jackson Laboratory mice, scientists hope to obtain hints that will be useful to doctors in treating similar anxiety states that are called "combat fatigue" in human beings.

The long persistence of escape behavior, as it is called, seems to have a physiological basis, involving the nervous and other bodily systems.

Male mice were allowed to be beaten up by other male mice at 30-minute intervals every other day. After four to six days of such persistent defeat, these mice could not be trained to defend themselves with the mouse equivalent of their fists, as ordinary mice can be trained. They avoided fights. They developed an inhibition which in some cases persisted after two months of rest.

During this attempted fight training, the mice reduced their jumping and squeaking, which are emotional motor reflexes occurring involuntarily. But in voluntary behavior, the sort that is controlled by thought, the mice persisted in trying to avoid combat. The reflexes tend to die out in a few days, but the escape behavior may last for weeks or even months.

This makes the scientists believe that the escape behavior becomes associated as the cause of the emotional reactors. These in turn tend to stimulate more escape behavior.

Female mice were not used in the experiments.

Science News Letter, August 15, 1953

ENE FIELDS

CHEMISTRY

Loco Weed "Mine" Yields Rare Selenium

► A RELATIVELY rich source of the scarce chemical element, selenium, has been discovered in "loco weeds" that poison cattle.

Artificial growing of this pea-like herb may prove to be a practical way of creating a "weed mine" and producing the chemical, important in the electronics, petroleum and rubber industries, Dr. Bruce W. Gonser, assistant director of the Battelle Memorial Institute, Columbus, Ohio, reports in *Industrial and Engineering Chemistry* (Aug.).

Even if the soil in which the loco weeds grow does not contain sufficient selenium to make direct extraction economical, the plant blots up the element and concentrates it in its tissues. As much as 1.5% selenium by weight is contained in a plant in soil that contains only 0.005% of the chemical.

At present selenium is a by-product of the electrolytic production of copper and the supply is inadequate.

Science News Letter, August 15, 1953

INVENTION

$300,000 Paid for Atomic Patent

► PAYMENT OF $300,000 as compensation for partial revocation of a patent granted to seven atomic scientists in 1940, and for infringing use by the U. S. Atomic Energy Commission and the Manhattan Engineer District, has been approved by the AEC. The patent involved has been assigned to the U. S. government.

The patent, entitled "Process for the Production of Radioactive Substances," was granted on the basis of work by the seven scientists in Rome prior to 1934. One of the group was Enrico Fermi, who later played a leading role in the development of the U. S. atomic bomb.

Bruno Pontecorvo, who disappeared in September, 1950, after flying to Finland from England, and is believed to be in the Soviet Union, also was in the group. Pontecorvo originally held an eighth interest in the patent, but he assigned half of his interest to Eugene Ghiron-Fubini, Glen Head, Long Island, N. Y., in October, 1942. Pontecorvo gave his power of attorney to the attorney for the applicants before his disappearance.

The one-sixteenth share still assigned to Pontecorvo will be deposited in the U. S. Treasury pursuant to Treasury Departmental Circular No. 655, governing payment of funds to persons in certain countries.

The other scientists who had an interest in the patent are Edoardo Amaldi, Istituto fisico della Universita, Rome; Oscar d'Agostino, Istituto di Sanita Pubblica, Rome; Franco Rasetti, Johns Hopkins University, Baltimore; Emilio Segre, Berkeley, Calif., and Guilio Cesare Trabacchi, Istituto di Sanita Pubblica, Rome. Each of them, along with Fermi, held an eighth interest. G. M. Giannini and Co., Inc., of Pasadena, assignee and legal owner of the patent, also held an eighth interest.

The discovery involved in the patent was that radioactive isotopes of a number of elements can be produced by exposing the elements to neutrons which have been slowed down by passage through a moderating material. This principle has been applied in the atomic energy program.

The patent, granted in 1940, was partially revoked under the Atomic Energy Act of 1946.

Science News Letter, August 15, 1953

PUBLIC HEALTH

Examinations Complete Physical Will Include

► A GOOD many persons these days have had routine X-ray examinations of their chests. These are made to pick up unsuspected cases of tuberculosis. They also have helped spot unsuspected cases of cancer of the lungs.

Other persons have had routine checks of blood or urine. Many women go regularly to their doctors for routine examination of cervical smears for cancer. These routine checks are good for special purposes, but they should not lead the person to believe that he has been examined thoroughly and found normal, warns Dr. J. D. Mortensen of the Mayo Foundation, Rochester, Minn.

A complete physical examination, he states in a report to the American Academy of General Practice, should include the following: a thorough medical history, careful checking of the skin, posture, head and neck, eyes, ears, nose, throat, lungs, abdomen, genitalia, rectum, extremities and back.

X-ray examination of the chest, the blood Wassermann test and a urinalysis should all be routinely performed and brief neurologic and mental examinations should be made. All women should receive a pelvic examination.

If, after this, the doctor tells you that he has found nothing wrong with you, you have cause for celebration. Do not, Dr. Mortensen advises, feel that you have wasted your time or money. For many, the relief from worry that something dreadful is wrong with them and the peace of mind gained from such a complete physical examination are worth all the time and money that it costs.

For those in whom the examination detects trouble early enough for cure, the examination has been the means of giving them a longer lease on life.

Science News Letter, August 15, 1953

TECHNOLOGY

Toy-Like Gyroscope To Help Guide Missiles

► A TINY gyroscope about the size of a flashlight cell soon will be in mass production to help steer thousands of guided missiles to their targets.

String-walking gyroscopes regularly appear as children's toys. With their rotors spinning rapidly, the devices can hang as if by magic from the lip of a glass. One end of the toy is suspended in space, while the other end is supported only by the lip of the glass.

Once their rotors are whirling, gyroscopes have the property of resisting a change in the way they are oriented in space. Thus if the rotor is brought up to speed while lying in a horizontal plane, it resists being shifted into a vertical plane. This quality makes gyroscopes particularly good for keeping airborne radar antennas sweeping the same area of sky regardless of the pitching and rolling of the plane.

A joint product of the United States Time Corp., Waterbury, Conn., and Sanders Associates, Inc., of Nashua, N. H., the new gyro is less than an inch in diameter, less than two inches long and weighs less than three ounces. Its precision rotor comes up to running speed of 24,000 revolutions a minute in less than 10 seconds.

In addition to helping guided missiles find their targets, the gyros will go into aircraft instruments and fire control systems. They also will help stabilize radar antennas.

Science News Letter, August 15, 1953

MEDCINE

Advise Air Conditioning For Heart Patients

► PATIENTS WITH heart disease should have air conditioning in their rooms or hospital wards during hot, humid weather, the American Medical Association advises.

The reason is that as the temperature and humidity go up, the heart has to work harder because the heart and blood vessels help cool the body through increased flow of blood through the skin.

Rest in bed in a warm bed and room may rest the skeletal muscles of the body, but it will increase the work of the heart, the association points out. Rest in bed in an air-conditioned room, however, rests the heart.

The best guide for adjusting the temperature and humidity of the patient's room is his comfort, the association advises in *Archives of Internal Medicine*. Differences in climate, in bed clothing and in the patient's activity in bed will affect this. In some regions of the country, air-conditioning may not be necessary. Oxygen tents should be used on hot humid days primarily for their influence on the temperature rather than for the oxygen itself.

Science News Letter, August 15, 1953

BIOLOGY

Time For A Change

Length of day and night is nature's signal for plant flowering, animal migration, and other seasonal changes of living things. Studies show unsuspected effect of sun on life.

By HORACE LOFTIN

▶ AS SPRING approaches, pushing back the icy winter in its march, a biochemical reaction within the Arctic hare causes him to lose his snow white pelt in exchange for a summer coat of brown. When winter returns, the Arctic hare will be found in his white pelt again.

What force triggers these reactions with the changing of the seasons? Temperature increases and decreases?

Before the first leaves have fallen in autumn, many northern birds suddenly, impetuously fly towards winter quarters in lower latitudes. What factor tells them when to leave? Cooler weather? What tells them when to stop? Warmer weather?

No. Temperature change alone does not spark these and similar seasonal manifestations of life—like molting, migration and time of oestrus in animals, or time of seed germination, the switch from growth to flowering and, perhaps, the color changes of leaves in the fall in plants.

The physiological changes leading to the loss of the Arctic hare's white pelt for a more appropriate summer coat of brown begin while the winter cold is still at its height. Many birds begin their southward flight long before autumn cold arrives; while birds wintering in the tropics somehow know when it is time to fly back home, though they experience little temperature change in their tropical quarters.

Triggers Seasonal Variations

Scientists working all over the world have taken this riddle to the laboratory, and as the results of their work pour in, this vital fact keeps turning up:

The periodicity of light—the changing lengths of day and night—is the trigger mechanism of many, if not most, of these seasonal variations of animal and plant activity.

Thus a new role has been discovered for the sun, father of life. Besides being the supplier of warmth and energy to life on earth, now the light of the sun is seen to be the initial link in the chain reactions of many of life's most intimate processes in a way never before suspected.

And a new significance has been discovered for the darkness of night to living things. Length of night may be more directly involved in these seasonal variations of life than is length of day! Daylight, in many cases, may work in this trigger mechanism only as a temporary halt to the biochemical reactions set off by absence of light during the night.

The first clear-cut recognition of photoperiodism under laboratory conditions was made by two scientists of the U. S. Department of Agriculture, Drs. W. W. Garner and H. A. Allard, in 1920. They discovered that a tobacco variety, Maryland Mammoth, did not flower until the days had grown shorter (and nights longer). By putting tobacco plants in the greenhouse and artificially shortening their daily exposure to the light—actually they increased length of night—Drs. Garner and Allard forced the tobacco to bloom much earlier than it would in nature.

In the wave of experimentation that has followed this pioneer work on photoperiodism, the significance of their discovery has been greatly extended. Photoperiodism is not only concerned with flowering of plants, but also with germination of seed, rate of growth, type of growth and other such seasonal manifestations of plant life.

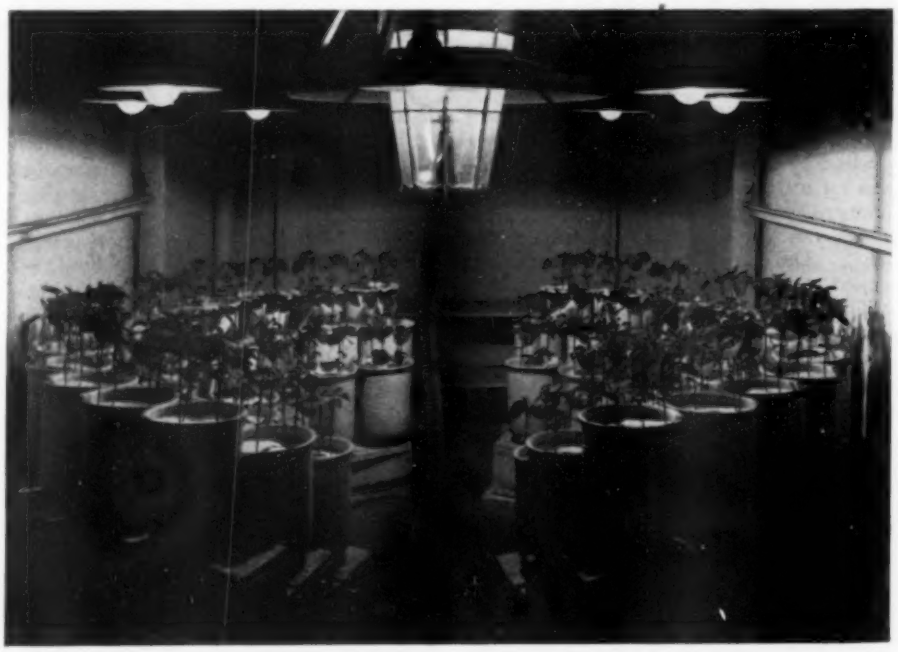
There is some kind of photoperiodical response in every higher plant at least, and probably similar responses will be found among the lower plants.

Animals, too, have been found to be subject to photoperiodism. Molting, migration, seasonal fattening, oestrus, ovulation and growth of many animal forms depend on light changes to set them going.

Photoperiodism in Animals

Among the higher animals, light and darkness are perceived generally through the region of the eyes, the light stimulating the optic nerve, which through cerebral centers then stimulates the hormone-producing pituitary and perhaps other hormonal glands. Broadly, this is the way that light change triggers the mechanism of seasonal changes in these animals. With lower animals, light may again be perceived through the optical region, or in some cases through the thin body wall, to activate hormonal responses.

In plants, the action of light and dark changes seems to do its biggest job on the leaves. Experiments now under way indicate that light and darkness act on a pigment, as yet not isolated chemically, in the



MAN-MADE ENVIRONMENT—The length of day and night is controlled at the will of researchers in the world of these experimental plants. Their sun is the giant carbon arc lamp about which they are huddled. Changes of as little as 15 minutes of sunlight a day can cause flowers to bloom, or birds to migrate. Scientists have found that the stimulus of light or darkness can lead to different phenomena in different species. Some plants are "short-day," some are "long-day," and some are "day-neutral."

leaf to produce many of the photoperiodical efforts observed.

Differences in day or night length as small as 15 minutes can be the signal for birds to fly thousands of miles, or for plants to cease growing and begin to flower.

The relative length of night to day has effects on plants and animals, the outcome of which we call photoperiodism. But this relation of night to day and its effects on living beings is complicated by the fact that the same stimulus of light or darkness can lead to opposite or totally different phenomena in different species.

Some Plants "Day-Neutral"

Thus, "short-day" plants, like sugar cane, will not flower until the daily dose of sunlight has decreased. Wheat, on the other hand, is a "long-day" plant. It will not flower except with the long days and short nights of summer—unless, of course, you artificially illuminate it during winter.

Then, there are "day-neutral" plants, like Connecticut Broadleaf tobacco, that seem independent of day-length for flowering.

It may help to think of the light-darkness relationship as a trigger, or initiator, that sets in motion various chemical reactions inherent in a given species of plant or animal. The reactions to the light-darkness stimulus differs according to the special nature of each species.

Some of the most advanced and exacting work on photoperiodism is now going on at the Agricultural Research Center of the U. S. Department of Agriculture, Beltsville, Md. Scientists there are examining the responses of plants to the different colors of the light spectrum. The most effective part of the spectrum in producing the effects of long days on plants is red light.

Then as you go down the color spectrum from red to violet, it takes increasing amounts of each pure color to duplicate the effects of the preceding color. A narrow band of invisible infrared light has been found to have the effect of a long dark period.

Knowledge of the workings of photoperiodism holds many practical rewards for plant breeders, farmers and animal husbandmen. By correct use of artificial light it may be possible to introduce plants to new areas, have flowers all during the year, breed animals throughout the year.

But the real reward of research in photoperiodism will be in the opening of many previously closed doors to the secrets of life and nature.

Science News Letter, August 15, 1953

GENERAL SCIENCE

Standards' Cuts Disturb

► MANUFACTURERS ARE disturbed by cuts in funds for testing services by the National Bureau of Standards. They are used to relying on the Bureau as the final judge when there is a dispute over testing methods, or when precision instruments must be matched against precise standards.

But with the Bureau's budget for research and testing cut to $3,000,000, this is no longer possible. Some of its usual services must be cut down or eliminated. About 50 representatives of manufacturing concerns using the Bureau's testing facilities met in Washington on Aug. 3 to discuss the problems raised by such cuts.

The feeling at the meeting was that the conferees were gathered at the wrong time and the wrong place. As one manufacturer pointed out, they should have been meeting "a few months earlier in a different part of the city—about five or six miles southeast of here," that is, on Capitol Hill, where they might have been able to persuade Congress not to make such drastic cuts in the Bureau's budget.

To help solve the problem of getting adequate and unbiased testing services, the conferees set up a special committee, headed by G. M. Hickey of the J. Bishop and Co. Platinum Works, Malvern, Pa.

Manufacturers represented at the invitational meeting included General Electric, Radio Corporation of America, Bendix Aviation, Allis-Chalmers, Kimball Glass, Pratt and Whitney, and the American Instrument Company.

There was some discussion among the conferees on the possibility of Massachusetts Institute of Technology taking over some of the Bureau's previous testing services.

Science News Letter, August 15, 1953

TECHNOLOGY

Atomic Radiation Makes Plastic Heat-Insulating

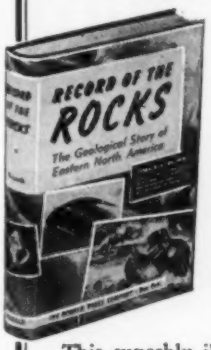
► MANUFACTURE OF heat-insulating material by subjecting methacrylate plastic to atomic radiation is suggested by experiments at Britain's Atomic Energy Research Establishment at Harwell.

When polymethyl methacrylate plastic was tested in the atomic reactor or exposed to a pure gamma radiation from a cobalt-60 source, it bubbled and took on an expanded form. In some cases after radiation, the material expands on heating.

Dr. A. Charlesby and M. Ross, reporting their experiments in *Nature* (June 27), suggest that this plastic, called Plexiglas and Lucite in the United States and Perspex in Britain, could be placed inside containers after being irradiated, and then expanded by heating to give a complete filling with the bubble material of the required space.

Science News Letter, August 15, 1953

Modern Science Books



RECORD of the ROCKS

Horace G. Richards

Academy of Natural Sciences, Phila.

THE GEOLOGICAL Story of Eastern North America — in word and picture. This superbly illustrated book gives a clear account of the development of the physical world with emphasis on rock and fossils found in the Atlantic Coastal Plain. Fully analyzes and explains each period from the Pre-Cambrian to the Recent. Explains principles of physical geology, includes useful classification of plants and animals. 294 ills., 413 pp. $6

200 MILES UP

J. Gordon Vaeth, *U. S. Navy Special Devices Center*

EXCITING account of the conquest of the upper air. Summarizes postwar research on nature of the atmosphere at altitudes beyond piloted flight. Shows how man explores space frontiers; gives a factual picture of the upper air from instrumental readings gathered by rockets, balloons, etc. 63 ills. $4.50

SKYSHOOTING

R. Newton Mayall *and* Margaret L. Mayall—*Harvard College Observatory*

HUNTING THE STARS with your camera. How to photograph the heavens — aurorae, meteors, planets, sun, moon, stars. Contains basic data on photographic details, astronomy, telescopes, etc. Helps amateurs produce beautiful "shots" of scientific value. 77 ills., tables. $3.75

MEASURING OUR UNIVERSE

Oliver Justin Lee, *Northwestern University, Emeritus*

FROM THE INNER atom to outer space—this book explains the ways, methods, and instruments used by scientists to measure distances ranging from one-trillionth of an inch to a billion light years. 45 ills. $3

SUNSPOTS IN ACTION

Harlan True Stetson, *formerly Massachusetts Institute of Technology*

ACCURATE DATA on these phenomena for all who want to keep abreast of advances in the study of the earth's cosmic environment. Discusses the effects of sunspots on man, weather, animals, plants, radio, TV. 50 ills. $3.50

THE RONALD PRESS COMPANY
15 East 26th St., New York 10

Books of the Week

For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N. W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

FOURTEENTH SEMIANNUAL REPORT OF THE ATOMIC ENERGY COMMISSION—Gordon Dean, Chairman—*Govt. Printing Office*, 98 p., paper, 30 cents. The six-month period covered here was one of consolidating advances in production. This has involved use of some unusual materials. Outstanding event in the medical field was completion of the cancer research hospital at Argonne National Laboratory. (See SNL, Aug. 8, p. 93.)

GEOLOGICAL ABSTRACTS, Volume I, Nos. 1 and 2, March-June, 1953—H. R. Aldrich, Chairman, Abstracts Project Committee—*American Geological Institute*, 100 p., paper, quarterly, $2.00 per year. Compiled from abstracts of current journals in the earth sciences. An index of authors under subjects is included.

NEIGHBORS PRAISE HIS ARTICLES

"As a 'buy-product' of NIA Training, I received a total of $73.00 for articles and material from Autobody and the Reconditioned Car. The local weekly, City and Suburban Life, printed one of my practice articles and asked for more. When neighbors stop you on the street to say they read your piece, there's nothing like it." —George R. Maire, 114 9th St., Laurel Gardens, Penna.

How Do You Know You *Can't* Write?

HAVE you ever tried?

Have you ever attempted even the least bit of training, under competent guidance?

Or have you been sitting back waiting for the day to come when you will awaken all of a sudden to the discovery, "I am a writer?"

If the latter course is the one of your choosing, you probably never will write. Lawyers must be law clerks. Doctors must be internes. Engineers must be draftsmen.

That is why the Newspaper Institute of America bases its writing instruction on journalism—continuous writing—the training that has produced so many successful authors.

Learn to write by writing

Newspaper Institute's New York Copy Desk Method starts and keeps you writing in your own home. You receive actual assignments, just as if you were at work on a great metropolitan daily. Your writing is individually corrected and constructively criticized. Under such sympathetic guidance, you will find that (instead of vainly trying to copy someone else's writing tricks) you are rapidly creating your own distinctive, self-flavored style —undergoing an experience that develops your talent, insight, background and confidence as nothing else could.

Many potential writers become awestruck by fabulous stories about millionaire authors and, therefore, give little thought to the $25, $50 and $100 or more that can often be earned for material that takes little time to write articles on—science, scientific papers, hobbies, travel, local, club and church activities, etc.—things that can easily be turned out in leisure moments.

A chance to test yourself—FREE.

Our unique Writing Aptitude Test tells whether you possess the fundamental qualities necessary to successful writing—acute observation, dramatic instinct, creative imagination, etc. You'll enjoy taking this test. The coupon will bring it free, without obligation. Newspaper Institute of America, One Park Ave., New York 16, N. Y. (Founded 1925.)

(Licensed by State of New York)

FREE NEWSPAPER INSTITUTE OF AMERICA, ONE PARK AVENUE, NEW YORK 16, N. Y.

Send me, without cost or obligation, your Free Writing Aptitude Test and further information about writing for profit as promised in Science News Letter, Aug. 15.

Mr. }
Mrs. }
Miss } .....

Address .....

City ..... Zone.... State.....

(All correspondence confidential. No salesman will call on you.)

☐ Check here if Veteran. 117-M-803

Copyright 1953 Newspaper Institute of America

HIGHER TRANSCENDENTAL FUNCTIONS, Volume I—Harry Bateman—*McGraw-Hill*, 302 p., $6.50. This book is a part of a monumental work planned by the late Dr. Bateman and continued after his death by a team of the California Institute of Technology, working under contract with the Office of Naval Research.

HOME SHELTERS FOR FAMILY PROTECTION IN AN ATOMIC ATTACK—Federal Civil Defense Administration—*Govt. Printing Office*, Technical Manual 5-5, 86 p., illus., paper, 30 cents. For the householder, directions and "build-it-yourself" drawings and specifications for building a home shelter against the atom bomb.

MAMIFEROS SILVESTRES DEL VALLE DE MEXICO—Bernardo Villa R.—*Instituto de Biologia*, 223 p., illus., paper $2.00, cloth $3.00. Scientific description (in Spanish) of the wild mammals of the semi-arid plains to the north of Mexico City.

PLANT DISEASES: In Orchard, Nursery and Garden Crops—Ernst Gram and Anna Weber, R. W. G. Dennis, Ed.—*Philosophical Library*, 618 p., illus., $18.50. Compiled by 2 leading Danish plant pathologists, this describes many types of plant diseases and offers suggestions for control measures.

THE PRESCHOOL CHILD WHO IS BLIND—Children's Bureau—*Govt. Printing Office*, 23 p., illus., paper, 10 cents. Telling the parents of a blind baby how to help him to grow up to be self-sufficient, happy, and useful despite his handicap. Reassurance is provided by the reminder that the child, at least, does not know what he is missing; he does not feel different. (See p. 101.)

QUEST FOR A NORTHERN AIR ROUTE—Alexander Forbes—*Harvard University Press*, 138 p., illus., $4.00. The air route to Europe by way of the frozen north is now commonplace. Here is the story of how the land was explored and surveyed before the air fields could be built.

RADIO AND TV TEST INSTRUMENTS—*Gernsback*, 128 p., illus., paper, $1.50. Showing service technicians how to build their own instruments to exactly fit their needs.

THE SOCIAL INSECTS—O. W. Richards—*Philosophical Library*, 219 p., illus., $4.75. Telling of the interesting habits of those creatures that greatly outnumber humans or, indeed, all mammals. The author, who is British, comments that "many more specimens of insects can be found in and on an acre of ground than make up the human population of the British Isles."

STUDY IN HUMAN STARVATION: Diets and Deficiency Diseases—*American Geographical Society*, paper, $1.50 flat, $1.25 folded. Various colors show the world pretty well covered with populations suffering from various deficiency diseases.

STUDY IN HUMAN STARVATION: Sources of Selected Foods—*American Geographical Society*, paper, $1.50 flat, $1.25 folded. In addition to the world distribution of food sources, tables show the caloric and nutrient values of all these foods. A small map shows population distribution.

TV MANUFACTURERS' RECEIVER TROUBLE CURES, Volume 4—Milton S. Snitzer, Ed.—*Rider*, 120 p., illus., paper, $1.80. What the manufacturer recommends as the cure for the difficulties you may experience with your own TV receiver.

WHITE MOUNTAINEER—Rutherford G. Montgomery—*Little, Brown*, 177 p., illus., $2.75. The life of a Rocky Mountain goat and how he held his own in competition or battle with other wild creatures and with man. Told for young people.

WHY WE LIVE WHERE WE LIVE—Eva Knox Evans—*Little, Brown*, 151 p., illus., $3.00. Most people live where they do because of things that happened hundreds and thousands and millions of years ago. Geography in a new dress, and related to life and its daily concerns.

THE WORLD BENEATH THE SEA—Otis Barton—*Crowell*, 246 p., illus., $3.50. Some of the excitement and adventure to be found beneath the sea is here presented by the author who, with Dr. William Beebe, first explored record depths in the bathysphere.

MEDICINE

Roles of Obesity and Heredity in Diabetes

➤ YOU MAY have heard that heredity and obesity, or marked overweight, both play a part in diabetes. Immediate cause of the disease is a deficiency of insulin, the chemical produced by the tissues in the pancreas called islands of Langerhans.

Since the discovery of insulin, diabetics have been able to live out a normal life span in many cases. With the longer life for diabetics, scientists have been able to make longer and more detailed studies of the disease and factors involved in it.

This has made it possible, the Illinois State Medical Society points out, to prove that heredity plays an important role in the development of diabetes and, because the life expectancy has been increased to the age when obesity more readily develops, overweight has become a serious problem.

Next to heredity, obesity ranks as the most important predisposing factor in the causation of diabetes. The tendency to become overweight after the age of 40 is probably related to the frequency of diabetes at this time. In children, obesity is not the prominent factor in the development of diabetes that it is in adults. Needless to say, however, the overweight child with a family history of diabetes should be placed on a reducing diet.

The increased amount of food that the obese person consumes places a strain on the insulin-producing cells of the pancreas. Eventually a deficiency is produced in the person with a hereditary background and diabetes is the result.

While injections of insulin are thus far the one established means of controlling diabetes, they are not always necessary in the obese if regulations in the diet are watched carefully.

Books Worth While Reading

SCIENCE SERVICE PUBLICATIONS

August Offer Saves 40%: Complete Set of 10 Items—Only $7.75

1 ATOMIC FACTS

Just the information about atomic energy that you need to know. Easy to read chapters and fundamental information arranged for easy reference. The H-Bomb . . . Our Atomic Future . . . Structure of the Atom . . . How Atomic Bombardment Works . . . Birth of Matter . . . Neutron-Proton Exchange . . . Mesons Created in the Cyclotron . . . The Atomic Nucleus . . . Electron Shells . . . Units of Mass, Charge and Energy . . . Atomic Energy Common, Fire Rare . . . Atomic Energy Progress . . . Atomic Energy Engineering . . . Uranium Prospecting . . . Radioactive Wastes . . . Acute Radiation Illness . . . Isotopes Report Reactions . . . Photographing Nuclear Particles . . . Radiation Detection Instruments . . . In Case of Disaster . . . Naming the Isotopes . . . First Tracer Chemistry . . . Prediction of the Neutron . . . The First Tritium . . . Slow Neutron Bombardment. Fully indexed, cloth bound. Postpaid **$2.00**

2 CHEMISTRY SHOW BOOK

For youth who want to conduct experiments, build exhibits and present entertainments upon a chemical theme, this is the book. Three chemical plays are included that can be staged by any group. How to produce chemical surprises. All about fireworks and colored flames. Experiments for the home laboratory explained in simple directions. How to put on a show and demonstrate before an audience. How to make a speech about chemistry. Photography and photographic displays. Chemical quiz corner with answers. Fully indexed, cloth bound. Postpaid **$2.00**

3 EXHIBIT TECHNIQUES BOOK

When it is time to show off a science project in science fair or exhibition, the ideas, hints and experience packed into this comprehensive volume will prove invaluable. Many exhibits that have won prizes are pictured in photographs and diagrams as helpful suggestions that can help your own original planning and thinking. What to guard against in laying out your material. How to label, letter and display. Ideas from professional museum preparators. Simple experiments that will be models for those that you will incorporate in your project. How to build a diorama, revolving platform, changing lighting, make models, etc. Index that allows you to find what you want to know. Fully indexed, cloth bound. Postpaid **$2.00**

4 THE CHEMICAL ELEMENTS

Their properties, sources, most important isotopes, characteristic compounds, places in the periodic table and the qualitative analysis scheme, and the histories of their discoveries, all brought together in a compact handbook. Fully indexed, cloth bound. Postpaid **$2.00**

5 THE CHEMISTRY WE USE

A compilation of "Home Lab" experiments, a monthly feature of CHEMISTRY magazine. Written by Burton L. Hawk . . . and designed for a simple but adequate home laboratory in which real chemical preparations can be made . . . The World We Live In, The Air We Breathe, The Water We Drink, The Food We Eat, The Clothing We Wear, The Coins We Spend, The Drugs We Take, Lesser-Known Elements We Study, Other Materials We Use . . . **A Practical Introduction to the Chemistry of Everyday Things.** Fully indexed, cloth bound. Postpaid **$2.00**

6 USE OF TOOLS *and* FUNDAMENTALS OF MECHANICS

Two cloth-bound books that will help anyone in repairs around the house, shop or laboratory. How to use tools for measurement, woodworking, painting, metalworking, soldering, wire splicing. Basic principles and fundamentals to help you understand and operate machinery. Photographs by Fremont Davis, text by Marjorie Van de Water and Morton C. Mott-Smith, Science Service staff. Phototold in over 600 vivid photographs. Original price $5.00, special combination price— Postpaid **$1.98**

7 ATOMIC BOMB FIRST AID

Just what you need to know about what to do if an atomic bomb strikes. Over 7,000 copies of this fully illustrated booklet have been purchased by hospitals, civil defense organizations, clubs, etc. By Jane Stafford, Science Service medical writer. Revised edition includes new material. Contents: If atom bomb hits . . . check bleeding first . . . new hope for the burned . . . shock and broken bones . . . aid for suffocation victims . . . treatment of the injured. Postpaid 8 for $1, 100 for $7.50. Each **15¢**

8 FROM NOW ON, *The Next Fifty Years in Science*

Provocative appraisals by Watson Davis, director of Science Service. Twenty appraisals in handsome portfolio form: Food, energy, the earth, chronic ills, ray study, fuels, polio, elements, galaxies, food race, viruses, new foods, publication, antibiotics, weather, talents, oldsters, radiation, silicon, the atom. Postpaid 3 copies for $1. Each **35¢**

9 LAWS OF MATTER UP-TO-DATE

A compilation of 74 informational paragraphs and statements, as affected by atomic advances. By Helen M. Davis, editor of CHEMISTRY magazine. Postpaid 100 copies for $3. Each **10¢**

10 PERIODIC TABLE OF ELEMENTS

Both the Mendeleeff and Bohr arrangements, with all 98 elements included. An up-to-date chart of the chemical elements by groups and series including spaces for probable new elements. Postpaid 10 copies for $1. Each **25¢**

To Science Service
1719 N St., N. W., Washington 6, D. C.

Send me publications I have circled below.

$_____ enclosed.

1 2 3 4 5 6 7 8 9 10 ALL

If you want all items, circle 'ALL' and enclose $7.75. This offer good during August and September only.

Name _____

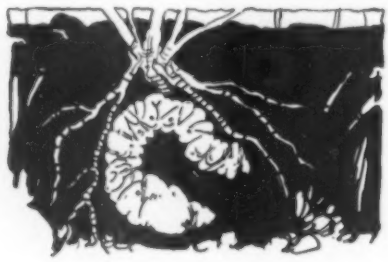
Address _____

City _____ Zone _____ State _____

SNL 8/15/3

ENTOMOLOGY

NATURE RAMBLINGS



Underground Enemies

➤ GARDENING OPERATIONS are apt to turn up numbers of the fat white larvae commonly known as grub-worms, and once in a while a big brown beetle, its shell still moist and soft.

It is natural to find them together, for the grub-worms are the larvae, or infants, of the beetles.

In ancient Egypt, these beetles would have been treated with the utmost respect, for they belong to the same general entomological cousinship as the scarab, which was a sun symbol.

Most widely distributed are the ones known sometimes as May-beetles, sometimes as June-bugs, depending on the month in which they become most numerous above ground in your neighborhood. These are found all over the country, except in the more arid regions.

In a large and regrettably growing section of the Northeast, the pattern is repeated on a smaller scale—about one-fourth the May-beetle size—by a more recently introduced pest, the Japanese beetle. The two insects are fairly closely related, though their native homes are far apart.

Whenever your spade turns up either grub-worms or beetles, be sure to destroy them. If you keep chickens, they will welcome such tidbits eagerly. The grub-worms also make good fish bait—if your mind tends to stray from the sober business of gardening. But even if you can't put them to any practical use, kill them anyway. Crush them with your spade, or drop them into a tin of kerosene.

If you live in Jap-beetle country, you do not need to be told why you should massacre all such insects you turn up. You have seen what havoc the swarms of adults can work on anything green and edible. The larvae underground duplicate on the roots of plants what the adults do to the tops.

The bigger white grubs are even more destructive underground feeders than the Japanese beetle larvae, for their appetites are correspondingly larger and they are just as omnivorous. They will gnaw into the hearts of potatoes or carrots or other root crops; and what a lot of grub-worms can do to a strawberry bed cannot be adequately discussed in print.

These underground enemies show no mercy to your garden, and you should give them no quarter.

Science News Letter, August 15, 1953

CHEMISTRY

Blue Dye Shows When Egg in Noodles

➤ HOW MUCH egg in noodles, if any? A blue dye can tell.

The U. S. Army's Quartermaster Subsistence Testing Laboratory, Chicago, grinds up samples of the noodles it buys for feeding the fighting forces, adds the dye and then determines the depth of the blueness by a colorimeter. Because eggs have a fatty, phosphorus-containing product which is stained by the dye, the bluer the noodles, the more egg.

Egg noodles have to contain 5.5% egg yolk solids to meet Army specifications. The new blueness test is not yet official, but is used for screening purposes.

The new test is reported to the *Journal of Agricultural and Food Chemistry* (July 22) by John E. DesPaul, Albert Weinstock and Charles H. Coleman.

Science News Letter, August 15, 1953

TECHNOLOGY

Two-a-Day Merger Rate

➤ AMERICAN INDUSTRY has diversified its activities in the post-war years, a survey by Arthur D. Little, Inc., Cambridge, Mass., shows.

Many companies have gotten into some other business by merging with other companies. Such mergers, mostly seeking product or market diversification, have been proceeding at the rate of two a day for the past seven years.

Instead of seeking to control markets as was the case in many earlier business combinations, the present trend of diversification increases competition, the survey points out. Getting into some other line of business along with the older activity avoids a narrow market and the sharp swings in demand of only a single field.

A leading producer of railroad air-brake systems formerly relied entirely on the notoriously undependable demand of the nation's railroads. It recently purchased another company making road-building machinery and industrial engines. Other railway-equipment companies now manufacture aircraft equipment, electronic devices, oil-field pumping equipment, jet engine parts, vacuum pumps, farm-machinery castings, heat exchangers and plastics. One such company, formerly selling six related products to one industry, now makes 28 products for nine industries, and has reduced its dependence on the original market by 40%.

The fact that people live longer and that there are larger annual baby crops has caused some companies to go into these new markets.

More leisure time for the consumer, resulting from the shorter work week, paid vacations and faster transportation, creates many new consumer demands. The shift to suburban and semi-rural living areas makes new markets for garden-type furniture, home-workshop tools and a host of other products for the home.

"Markets for industrial products are also changing because of increased complexity of manufacturing operations, greater use of new materials, and greater technological obsolescence," the survey finds. "The rise of the petrochemical industry, the substitution of plastics for metals, the trend to automation, and the broad field of atomic energy suggest new opportunities to many established companies, although a high degree of scientific competence is required to enter these and similar fields."

Science News Letter, August 15, 1953

To combat *counterfeiting* of money orders, new fluorescent inks are being used on certain parts of the official blanks; when exposed to ultraviolet light, the inks glow brightly.

MOIS-TEC
Reagent for Determining
Semi-Quantitatively
Low Concentrations of Water
RAPID — SIMPLE — USEFUL
For Laboratory, Plant or Field Use
Write for Leaflet SNL-MT
R. P. CARGILLE LABORATORIES INC.
117 Liberty St. New York 6, N. Y.

HOUSES OF EARTH
Construct fireproof, termiteproof rammed earth home yourself using ground on which you build. Resistant to heat and cold. Economical. Upkeep negligible. These beautiful homes last indefinitely.
Information compiled from findings of government experts.
42-page booklet gives complete instructions. 18 illustrations.
$2.00
A. B. LEE
Box 171 — Ben Franklin Station
Washington, D. C.

WRIST RADIO—While broadcasting into a wrist radio transmitter, James J. Sutherland of Sylvania Electric Products Inc. hears his own voice through the transistorized radio receiver he holds.

ENGINEERING

Niagara Water Diverted For Electric Power Station

See Front Cover

► ONE OF the gigantic tunnels that will divert one-fifth of the water flowing to Niagara Falls to the new $300,000,000 electric power station being erected in Canada is shown on the cover of this week's SCIENCE NEWS LETTER.

The water will be taken from the Upper Niagara River, near Chippawa, two miles above the Falls. The twin tunnels will transport the water five and one-half miles, emptying it into a surface canal over two miles long for delivery to the power station.

The plant will have a generating capacity of 1,200,000 kilowatts, enough for the residential needs of a city the size of New York. Four of its 12 generating units are expected to be running next year, while the remainder will reach full operation by 1957.

The tunnels have a rough diameter of 51 feet. Built on Blaw-Knox Company's steel forms, the circular concrete linings are three feet thick, reducing the final diameter to 45 feet. The lining will require nearly 1,000,000 cubic yards of concrete, more than enough to build a sidewalk from Boston to San Francisco.

Water for the power station is made available by a United States-Canada treaty, which insures that at least 100,000 cubic feet of water per second must pass over the cataracts during the daytime hours of the mild-weather months.

Science News Letter, August 15, 1953

VETERINARY MEDICINE

Break Disease Deadlock

► THE DEADLOCK between Mexico and the United States over foot-and-mouth disease control methods, following the June outbreak in the state of Vera Cruz, has finally been broken.

Resolution of the bitter dispute cost compromises on both sides, but the major point of the United States, that exposed livestock should be slaughtered, seems to have carried.

The key clause in the Mexico-U. S. settlement over how to fight the dreaded livestock disease is "the use of the most practical methods in the 'evacuation' of the animals consistent with the need for absolute safety in preventing spread of the disease."

"Evacuation," it is reliably reported, seems to be a new way of saying "slaughter," a tabooed word in Mexico now. Foot-and-mouth disease, or aftosa, eradication by slaughter, the only certain control measure, was strongly opposed by Mexico, following the June outbreak, and led to the series of delicate negotiations just completed.

A change from past methods of control under the new agreement is that "evacuated" animals can be made into fish food, fertilizer, tankage and other commercial products after treatment to make the meat harmless. Previously, "evacuated" animals were destroyed.

Under the new plan, when all susceptible animals have been "evacuated" from the infected zone near Gutierrez Zamora, Vera Cruz, the joint Mexico-U. S. anti-aftosa commission will supervise complete disinfection of the area, including burning of pastures. Then test animals will be placed in the zone to check on the success of the control measures before livestock is permitted in again.

Susceptible animals within a radius of about six to nine miles of the focus of infection will be vaccinated. Animals in a 15-mile radius will be held in strict quarantine until control has been achieved.

Science News Letter, August 15, 1953

PHARMACOLOGY

New Anesthetic Potency Is 1,000 Times Cocaine's

► POTENT LOCAL anesthetics can be made even more active by substituting sulfur for the carbonyl oxygen atom in the molecule, scientists at Sterling-Winthrop Research Institute, Rensselaer, N. Y., find.

One of the new anesthetics they have produced is 1,000 times more active than cocaine when applied to the cornea of a rabbit's eye. When used as a spinal anesthetic for rabbits, anesthesia lasted twice as long, with about one three-hundredth the dose, as compared with procaine.

With the increase in potency went a greater margin of safety with regard both to irritating effects and general toxicity.

The new, potent local anesthetic is known so far only by the code name, WIN 4510. Details of its chemistry, testing and other related compounds are reported by Drs. F. P. Luduena, R. O. Clinton and S. C. Laskowski in *Science* (July 31).

Science News Letter, August 15, 1953

Questions

ASTRONOMY—What is the smallest diameter yet calculated for an asteroid? p. 103.

• • •

BIOCHEMISTRY—How are premature babies giving a clue to a cancer test? p. 100.

• • •

CHEMISTRY — How could selenium be "mined"? p. 105.

• • •

MEDICINE—Why is air conditioning advised for patients with heart disease? p. 105.

• • •

ORNITHOLOGY — How has the warbler learned to outwit the cowbird and its gift of eggs? p. 102.

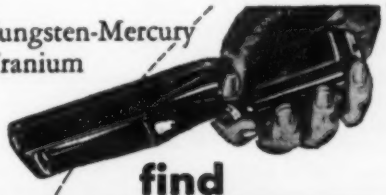
• • •

PEDIATRICS — Why should one not express pity if visiting a blind baby? p. 101.

• • •

Photographs: Cover, Ontario Hydro-Electric Power Commission; p. 99, National Foundation for Infantile Paralysis; p. 101, Radio Corporation of America; p. 102, University of Illinois; p. 103, U. S. Air Force; p. 106, U. S. Department of Agriculture; p. 111, Sylvania Electric Products, Inc.; p. 112, Selectric Products Co.

Tungsten-Mercury Uranium



find

vital war metals!

with Ultra-Violet

MINERALIGHT

MINERALIGHT Instantly identifies tungsten, mercury and many other valuable minerals now in great demand for rearmament. MINERALIGHT models for every requirement. Money-back guarantee.

ACTUAL ATOMIC BLAST SAMPLE! Send 25c for new mineral specimen from 1st atomic blast at Alamagordo, New Mexico.

FREE! Send for brochure SNL "Prospecting for Scheelite (tungsten) with Ultra-Violet."

ULTRA-VIOLET PRODUCTS, INC.

145 Pasadena Ave., South Pasadena, Calif.

• New Machines and Gadgets •

For sources of more information on new things described, send a self-addressed stamped envelope to SCIENCE NEWS LETTER, 1719 N St., N.W., Washington 6, D. C., and ask for Gadget Bulletin 687. To receive this Gadget Bulletin without special request each week, remit $1.50 for one year's subscription.

SAFETY CONTAINER for pills keeps youngsters from taking medicines they should not. The container has a special lid that is pressed in the center then lifted off. Children under five years of age rarely have the strength to release the cap.

Science News Letter, August 15, 1953

PLASTIC BINDING unit, small enough to be kept on a desk top, punches and binds loose sheets of all-sized paper into a book-like form. Bound with plastic rings, the pages turn smoothly and lie flat. Suitable for binding charts, circulars, photographs, business forms, reports and letters.

Science News Letter, August 15, 1953

PIPE PATCHES, particularly designed for leaky or broken pipes aboard ship, consist of a glass fiber tape, cloth or mat saturated with an epoxy resin. The patch is placed over the hole and allowed to cure for 30 to 45 minutes. The resulting repair can withstand pressures as high as 2,000 pounds per square inch, and is said to bond so well that it cannot be removed.

Science News Letter, August 15, 1953

ICE CREAM freezer makes one and a half quarts of ice cream in 35 to 45 minutes without ice and salt, and without cranking. The electric device is shown in the photograph. It fits into refrigerator freezing compartments, plugs into nearest wall outlet and stirs the ice cream ingredients until the proper consistency is reached.

Science News Letter, August 15, 1953

INSECT TRAP consists of a special glass jar, a cone that fits over it, and a bell-shaped aluminum hood that covers the whole unit. Baited with a liquid that is especially attractive to insects but non-poisonous to adults, children and pets, the device attracts and traps most household insects. The trapped vermin can be disposed of or can be used by fishermen as bait.

Science News Letter, August 15, 1953

PLASTIC UPHOLSTERY for kitchen chairs comes in eight textured patterns available in a variety of colors. The material can cover slip-seated chairs in about 15 minutes when the housewife uses hammer and tacks. A staple gun cuts the time to about 10 minutes.

Science News Letter, August 15, 1953

WOODWORKING TOOLS that integrate into a complete unit, now can be bought separately and are said to handle about 98% of all home workshop operations. Under the new "package" plan, the first machine consists of a tilting arbor, circular saw and the basic stand to which three other tools of the unit can be attached later. Remaining tools are: a jointer-planer, drill press and sander.

Science News Letter, August 15, 1953

TRACTOR RADIO, painted "fire-engine red," has been made shockproof, dustproof and waterproof so that it will give years of "fine service." The eight-tube set can be heard over the noise of the tractor and is mounted in a manner similar to the mounting of delicate instruments in aircraft.

Science News Letter, August 15, 1953

BIND and SAVE Your SNL Copies

With SCIENCE NEWS LETTER stamped in gold on front and spine, this excellent buff buckram binder costs $2.50 postpaid. Snap new issues into the cover with a little unbreakable hooked wire. Remove any issue you desire and reinsert it just as easily. The binder holds 26 copies, opens freely, allows pages to lie flat, is strong enough to last for years.

BINDER

To: Science News Letter, 1719 N St., N.W., Washington 6, D. C.

Send me.....SNL binders at $2.50 each, postpaid. My name is imprinted to the left.

Do You Know?

Tularemia, the dangerous rabbit disease that can be transmitted to humans, has been found in muskrats.

Oceanographic studies in an 800-foot-long model yacht basin in San Diego, Calif., may increase understanding of the vast wind-driven currents of the world's *oceans.*

The average adult eats his weight in *food* every six to eight weeks.

Salary is not the most important factor in the choice of *jobs,* a survey of recent college graduates shows; "type of work" usually was listed as the principal criterion.

Blindness is one of the main scourges of Africa.

More children are learning to play *musical instruments* today than at any time in history; about 1,000,000 are receiving private instruction, and 7,000,000 are getting it in public and parochial schools.